POSEIDON- 199

Fahrtbericht/Cruise Report
Südwestliche Pommersche Bucht, Februar 1993

Geologisch-Paläontologisches Institut und Museum,
Christian-Albrechts-Universität Kiel

Fahrtbericht der Fahrt POSEIDON-199/

Report of Cruise POSEIDON-199

Kiel-Kiel

1.2.1993-6.2.1993

Fahrtleitung/Chief Scientist: Dr. Kay-Christian Emeis
Geologisch-Paläontologisches Institut und Museum der Universität Kiel

Kurzfassung

Das Ziel der Fahrt POSEIDON-199 war eine erste akustische Erkundung und geologische Beprobung des Meeresbodens in der westlichen Pommerschen Bucht der südlichen Ostsee (Abbildung 1).
Im Rahmen des Forschungsprojektes ODER (Oder Discharge—Environmental Response), welches seit 1.1.1993 unter dem Umwelt-Programm der Europäischen Gemeinschaft gefördert wird, wurde der Bereich der fossilen Oder-Rinne mit akustischen und meeresgeologischen Methoden untersucht und beprobt. Hauptaugenmerk galt den Schlickakkumulationen im Übergang von der sandigen, küstannahen Fazies der Oderbank und des Festlandes zu den schlickigen Ablagerungen der tiefen Oder-Rinne und des südlichen Arkonabeckens.

Die hier gewonnenen Sedimente wurden an Bord beschrieben, in hoher Auflösung beprobt und die sedimentphysikalischen Kenndaten wurden bestimmt. Die Probenserien werden in den kommenden Monaten sedimentologisch, radiochemisch, paläontologisch und geochemisch untersucht, um die Verteilung, Sedimentation und Diagenese natürlicher und anthropogener Substanzen im Ablagerungsraum der Oder zu untersuchen.

Abstract

Cruise POS-199 was a first expedition under Project ODER to investigate the geological and sedimentological situation in an area east of the island of Rügen, where the submarine valley of the river Oder discharges into the southern Arkona-Basin. Using acoustic methods (3.5 kHz, Boomer, and Sidescan Sonar) in a closely-spaced grid of survey lines (2 sm apart in E-W trending profiles), we located accumulations of mud (Schlick) in an area characterized generally by sand deposition and -redeposition. Mud deposition is restricted to the deepest parts of the pre-transgressional river valley and to water depths below 20 mbsl. These accumulations of mud were sampled by box coring and gravity coring (where successful) and subsampled onboard ship for investigation of physical properties and subsequent analyses in shorebased laboratories. Future analyses will include sedimentological, radiochemical, micropaleontological and geochemical analyses to establish the dispersal, sedimentation and transformation of natural and man-made substances in the Oder depositional system.

Danksagung/Acknowledgements

Wir danken Herrn Kapitän Andresen und seiner Besatzung für die gute Zusammenarbeit; Herrn Prof. Kortum und der Leitung des Instituts für Meereskunde danken wir für die rasche und unbürokratische Bereitstellung von Schiffszeit.

Einführung und Ziele/Background and Objectives:

The biogeochemical cycling of many natural and anthropogenic materials is strongly governed by processes operating at the critical land-sea interface. Past European initiatives (EROS-2000, MAST 1) have shown the benefits derived from studies at this interface mainly in the Mediterranean. The coastal and marine environment of the southern Baltic Sea—centering on the river Oder and adjacent coastal and basinal depositional centers—affords a unique hydrographic, chemical, and ecological setting to elucidate pathways, removal rates, and ecological impact of anthropogenic and natural material at the land-sea interface. Among the incentives to study this area are:

- lack of tidal influence and an expanded estuarine salinity gradient from discharge to sedimentary sink,
- defined transport paths and sedimentary sinks,

- lack of detailed surveys on distribution of anthropogenic pollutants discharged via the heavily polluted river Oder,
- fragile benthic communities susceptible to external (pollutants) and internal (sediment dynamics, water column oxygenation) impact.

The area is important for agriculture, fishing, shipping, and tourism, all of which have placed heavy demands on the environment. Input of fertilizers and untreated sewage combine to drive hypertrophic conditions in the shallow-water, lagoonal 'boddens' and 'haffs', where biomass production reaches 3 g carbon/m^2-day during summer months. The resulting nutrient-rich mud is anoxic, heavily enriched in toxic metals and organic compounds, and is frequently resuspended by winds, trawling, and dredging of ship channels. Not only is the contaminated mud a concern with regard to the ecology in these transient depositional systems, but also the effects of rising sea level and the resulting 'back flow' of Peene and Oder with their anthropogenic burden. At present, the trapping effect of the boddens and haffs appear to control the deposition of pollutants in the anoxic and suboxic depositional centers of the Arkona- and Bornholm-Basin, where material derived from direct discharge and from resuspension is focussed.

The cooperative effort of project ODER focusses the expertise of chemists, ecologists, sedimentologists, and oceanographers on an assessment of sediment and pollutant dispersal and accumulation rates. Patterns of the benthic ecosystem and its response to environmental change will be evaluated through quantitation of abundance, diversity, and distribution of foraminifera, ostracods, and diatoms. By choosing selected sites that represent key locations within the transport path of the Oder discharge after an initial surveillance phase, and monitoring these sites over a three-year period, we will be able to clarify the controlling processes affecting anthropogenic inputs to a crucial (but understudied) sector of the Baltic Sea, as well as obtaining a set of environmental records for this area. The results will be compiled into a state-of-the-art Geographical Information System (GIS) for use by regulatory bodies and government agencies.

One of the key areas to be studied is the transition from the dynamic coastal zone and the Oder-Bank to the tranquil depositional setting of the southern Arkona-Basin (Fig. 1). The fossil valley of the Oder river follows the course of the eastern coast of Rügen and widens to the north into the southern Arkona-Basin. From

here, mud (Schlick) transgresses the sandy deposits, which are indicative of high energy that characterize most of the southern nearshore areas and the shallow Oder-Bank.

Our goals during cruise POSEIDON-199 were

- To map the transition from the nearshore, high-energy depositional system of the Oder-Bank and the coast to the low-energy depositional centers of mud in the Arkona-Basin with acoustic methods.
- To sample sediments across the transition from sand to mud deposits along the course of the fossil Oder valley east of Rügen.
- To provide samples of surface deposits and subsurface sediments for shorebased analyses of sediment and pollution dynamics in the Oder system.

Participants and Participating Institutions

Table 1: Scientific crew of cruise POS-199

Name	Institut	Tätigkeit
Emeis, K.-C.	GPI Kiel	Fahrtleiter
Blanz, T.	GPI Kiel	Geologische Probennahme, Sedimentologie
Doose, H.	GPI Kiel	Geologische Probennahme, Sedimentologie
Fietz, J.	GPI Greifswald	Geologische Probennahme, Sedimentologie
Hauser, D.	Geographisches Institut Kiel	Fächerecholot
Niedermeier, R.-D.	GPI Greifswald	Geologische Probennahme, Sedimentologie
Nühse, K.	Geographisches Institut Kiel	Fächerecholot
Rehder, W.	GPI Kiel	TA Geologie, Radiographien
Schacht, R.	GPI Kiel	Akustik, Seitensichtsonar
Schott, T.	GECON Kiel	Techniker Akustik/Seitensichtsonar
Witez, P.	Geographisches Institut Kiel	Fächerecholot

Some Technicalities

Equipment used for Acoustic Work

KLEIN 595 side-scan sonar

Side-scan sonar allows to map the seabed with acoustic methods and results obtained resemble those of aerial photography on land. It offers a comprehensive

view of morphological and sedimentological features along the track of the ship. The KLEIN 595 sss is a high-resolution system working simultaneously in two frequency ranges. The 100 kHz frequency band depicts features underneath the immediate surface layer; the 500 kHz-frequency band yields sharp and focussed echograms of the immediate surface. The instrument is controlled by a dual transceiver-recorder onboard, which sends and receives signals to and from a towed sonar fish via a multiconductor cable.

ORE-Geopulse boomer

Boomer-survey is an effective method of single-channel-reflection seismic profiling at sea. Boomer surveys are useful for mapping thick sedimentary sections (to appr. 50 m) in high resolution. The source provides high energy signals (175-450 J) and operates at low frequencies of 5 to 15 kHz. The system used here consists of a source and a hydrophone array, both towed at the water surface, and a transceiver/recorder and filter unit onboard.

3,5 KHz Echosounder

The instrument is used for single-channel seismic profiling and surpasses the boomer in energy output, penetration, and focus. Due to the lower frequency, resolution is less detailed than in boomer profiles. The sound source was installed in the fixed "Hydrographenschacht" onboard R/V POSEIDON and connected to a transceiver/recorder by cable.

Equipment used for Geological Work

Best results were obtained by sampling surface and underlying sediments with a giant box corer. The cores obtained measured up to 50 cm in depth and yielded sufficient sample material to take two archive liners (10 cm Ø) and an archive box of each station in addition to discrete samples at intervals usually 1 cm apart. Attempts to obtain long cores (6 m) by using the "Kiel Schwerelot" (gravity corer) weighed with 2 tons and Kasten corer (5,75 m, weighed with 3 tons) were only partly successful. In most instances the shallow water depths conspired with excessive ship heave and hard sand layers in the subsurface to bend the barrels and kastens. In no case were we successful in obtaining undisputable surface sediments in these long cores. Shorebased attempts to correlate material recovered in liners of the Schwerelote with box cores will prove if continuous and undisturbed sections can be constructed.

Cruise Narrative

R/V POSEIDON left Kiel on February 1, 1993 at 08:00 z and headed for the southern Arkona-Basin. During transit in calm weather and sea conditions, all seismic gear was set up and checked. In order to obtain a first overview of sedimentation in the area of operations, it was decided to perform a series of east-west seismic profiles with 3.5 kHz and boomer after arrival. To test and fine-tune the performance of the instruments, Profile 1A (POS-141; Table 2 and Figure 1) from Arkona to Stubbenkammer served as a warm-up exercise. Arriving at Arkona on 1.2.93 at 23:59z after approximately 140 sm of transit, acoustic profiling started at an average speed of 3 kn. The first series of operations with boomer and 3.5 kHz ended on 3.2.1993 at 08:16 z after finalizing profile 8 (POS-149).

Based on the results of the initial acoustic survey, we identified a series of coring positions that are aligned along the course of the submarine Oder valley. Maps of sediment distribution in the southern sector (south of 54°20´N; Dr. Neumann, Institut für Ostseeforschung Warnemünde, pers. comm. 1992) show patches of sandy mud to muddy sand in depressions of this valley. We found that the well-defined valley extended further north along the coast of the island of Rügen and finally widened and merged with the southern Arkona-Basin at the northern end of the island. Acoustic character of the sedimentary infill, i.e., lack of structure and partial wipe-out due to gas, suggested that the valley north of 54°20´N is completely filled with mud.

In total we occupied four sampling stations on 3.2.1993 (see Table 3 for sampling positions, time of recovery, GIK numbers and recovery. Figure 1 shows these positions, which are all located on acoustic profiles).

Station 1 (GIK 18000) saw three deployments of the box corer (Großkastengreifer, GKG). The first attempt was unsuccessful because the device did not trigger upon bottom contact. Attempt 2 (GIK 18000-2) recovered only 8 cm of sand. Attempt 3 (GIK 18000-3) finally recovered 22 cm of sand with minor mud (see descriptions below).

Station 2 (GIK 18001, 18002, and 18007 [taken on 4.2.1993]) was targeted on presumed thick mud accumulations in water 22 m deep at the center of the well-defined valley. Here, we successfully recovered a box core (50 cm) on 3.2.1993. Attempting to recover a section of deeper sediment at this station, we deployed a

6-m gravity corer (Schwerelot, SL) at Station 2 (GIK 18001-2). Upon recovery, the gravity core barrel was found to be bent and the liner contained no sediment. We installed a core barrel of 3 m lengths and redeployed it at the same position. Judging from mud traces on the weights of the instrument, the corer over-penetrated by more than 50 cm. Recovery was 298 cm of sediment, which were capped in the liners and archived.

Station 3 (GIK 18003) is located further to the north in the center of the valley in water 23 m deep. Here, we first deployed a box corer, which apparently sank >30 cm into the mud upon bottom contact. After recovery, it was impossible to detach the box from the frame without loss of approximately 2 cm of surface sediment, because the surface layer extended well over 5 cm over the upper rim of the box. We remedied this in the following deployments by adjusting the metal bars controlling penetration depth of the box to the lowest possible position. A 3-m gravity core was deployed after this initial attempt (GIK 18003-2). Again, it appears as if the tool over-penetrated; recovery was 294 cm of section which were capped and archived. On 4.2.1993, we re-occupied this site in order to successfully recover an undisturbed box corer (GIK 18008-1).

The final geological sampling station (4; GIK 18005) of the day was located offshore the famous chalk cliffs of Stubnitz in the area where the Oder-Rinne (the fossil river valley) widens into the southern Arkona Basin. We first deployed a box corer (GIK 18005-1) which revovered 50 cm of Schlick, followed by a 3-m gravity corer. Again, the gravity corer appears to have over-penetrated judging from mud traces between the weights. Recovery was 212 cm in liners that were capped and archived. We fitted a 6-m barrel to the same set of weights, but again were frustrated to find the barrel bent upon recovery. This deployment (GIK 18005-3) recovered only 292 cm of sediment.

Having finished the geological sampling operations at 17:00 z on the 3.2.1993, the ship resumed acoustic profiling at 18:58 z by retracking boomer and 3,5 kHz profiles 1B through 4 with the side-scan sonar system (Profiles 9 through 12; Table 2 and Figure 1). These profiles were finished at 06:03 z on 4.2.1993.

Site 4 of the preceeding day was re-occupied on 4.2.1993 at 09:11 z to attempt recovery of a long sediment section with a 575 cmx30cmx30cm giant box corer (GIK 18006-1) using a weight of 2,5 tons. However, we were unlucky and

recovered only 120 cm of sediment from a bent and twisted Kasten. Unperturbed, we attempted to re-occupy Sediment Station 2 (GIK 18007-1) with a 6-m-gravity corer to extend and improve recovery of a long sedimentary section here. Again the barrel was bent, however, and no sediment was recovered during this deployment. During these frustrating hours in the morning of 4.2.1993 wind and wave conditions worsened. It was decided to perform profile 13 (3,5 kHz) in order to await further development and to give the geologists a little time to digest the failure. Profile 13 (see Table 2 and Figure 1) was finished at 13:46 z on 4.2.1993. After this, two additional sampling stations were identified and occupied or re-occupied: GIK 18008-1 GKG recovered a giant box core with the surface intact from Station 3 of the previous day. GIK 18009-1 GKG recovered a giant box core with the surface intact from new sampling Station 5 midway between sampling stations 2 to the south and 3 to the north.

After this (16:10 z on 4.2.1993), side-scan sonar survey of boomer and 3,5 kHz profiles recorded previously was continued until 05:45 z on 5.2.1993: Sidescan Profiles 14 through 17 are equivalent to boomer profiles 5 through 8 (Figure 1 and Table 2). A final sidescan-sonar profile (18) was positioned along the course of the fossil Oder valley. In the course of the night, wind conditions and waves worsened and in gusts reached gale force. Recording quality of the sidescan sonar system deteriorated rapidly. After communication with the captain, it was decided to recover two additional box cores at Stations 8 (GIK 18011) and 9 (GIK 18012). Both deployments were successful. Sampling operations were finished at 14:00 z on 5.2.1993 and the ship returned to Kiel. Arrival there was at 03:00 on 6.2.1993.

Appendix

Figure 1: Map of the operational area and location of acoustic profiles and geological stations.

Table 2: Start and end of acoustic profiles

Table 3: Location and yield of geological sampling stations

Figures 2-10: Core descriptions

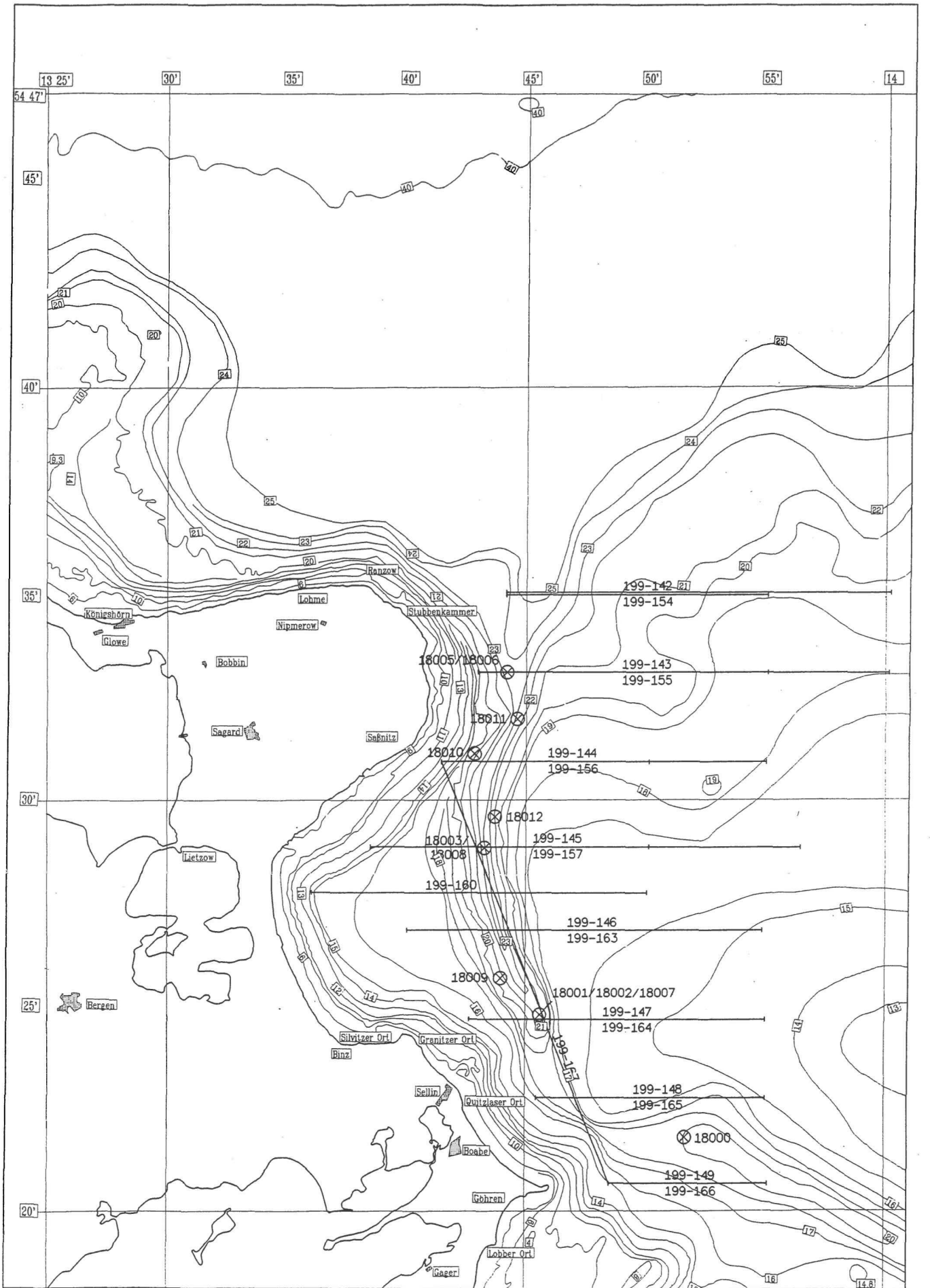
Report of the swath-mapping group (Hauser)

Table 2:
POS-199
Acoustic Profiles

Profil	#	Datum/Uhrzeit z	Gerät	Anfang Lat	Anfang Lon	Ende Lat	Ende Lon
1A	141	1.2.93/23:59 2.2.93/05:12	3.5 kHz/ Boomer	54 ° 45,6 ´N	13 ° 34,0 ´E	54 ° 35,0 ´N	13 ° 55,0 ´E
1B	142	2.2.93/05:12 2.2.93/08:56	3.5 kHz/ Boomer	54 ° 35,0 ´N	13 ° 44,0 ´E	54 ° 35,0 ´N	14 ° 0,0 ´E
2	143	2.2.93/09:50 2.2.93/13:08	3.5 kHz/ Boomer	54 ° 33,0 ´N	14 ° 0,0 ´E	54 ° 33,0 ´N	13 ° 43,0 ´E
3	144	2.2.93/13:59 2.2.93/16:30	3.5 kHz/ Boomer	54 ° 30,8 ´N	13 ° 41,4 ´E	54 ° 30,8 ´N	13 ° 55,0 ´E
4	145	2.2.93/17:14 2.2.93/20:38	3.5 kHz/ Boomer	54 ° 28,7 ´N	13 ° 55,0 ´E	54 ° 28,7 ´N	13 ° 38,5 ´E
5	146	2.2.93/21:28 2.2.93/24:00	3.5 kHz/ Boomer	54 ° 26,7 ´N	13 ° 40,0 ´E	54 ° 26,7 ´N	13 ° 55,0 ´E
6	147	3.2.93/00:52 3.2.93/03:04	3.5 kHz/ Boomer	54 ° 24,6 ´N	13 ° 55,0 ´E	54 ° 24,6 ´N	13 ° 42,5 ´E
7	148	3.2.93/04:03 3.2.93/06:04	3.5 KHz/ Boomer	54 ° 22,6 ´N	13 ° 45,4 ´E	54 ° 22,6 ´N	13 ° 55,0 ´E
8	149	3.2.93/07:01 3.2.93/08:16	3.5 kHz/ Boomer	54 ° 20,5 ´N	13 ° 55,0 ´E	54 ° 20,5 ´N	13 ° 48,5 ´E
9	154	3.2.93/18:58 3.2.93/21:07	Sidescan	54 ° 35,0 ´N	13 ° 44,0 ´E	54 ° 35,0 ´N	13 ° 55,0 ´E
10	155	3.2.93/21:46 4.2.93/00:22	Sidescan	54 ° 33,0 ´N	13 ° 55,0 ´E	54 ° 33,0 ´N	13 ° 43,0 ´E
11	156	4.2.93/01:15 4.2.93/02:15	Sidescan	54 ° 30,8 ´N	13 ° 41,4 ´E	54 ° 30,8 ´N	13 ° 50,0 ´E
12	157	4.2.93/03:12 4.2.93/06:03	Sidescan	54 ° 28,7 ´N	13 ° 50,0 ´E	54 ° 28,7 ´N	13 ° 38,5 ´E
13	160	4.2.93/11:54 4.2.93/13:46	3.5 kHz	54 ° 27,6 ´N	13 ° 36,0 ´E	54 ° 27,6 ´N	13 ° 50,0 ´E
14	163	4.2.93/16:10 4.2.93/18:35	Sidescan	54 ° 26,7 ´N	13 ° 40,0 ´E	54 ° 26,7 ´N	13 ° 55,0 ´E
15	164	4.2.93/19:15 4.2.93/21:45	Sidescan	54 ° 24,6 ´N	13 ° 55,0 ´E	54 ° 24,6 ´N	13 ° 42,5 ´E
16	165	4.2.93/22:16 5.2.93/00:10	Sidescan	54 ° 22,6 ´N	13 ° 45,5 ´E	54 ° 22,6 ´N	13 ° 55,0 ´E
17	166	5.2.93/00:45 5.2.93/01:56	Sidescan	54 ° 20,5 ´N	13 ° 55,0 ´E	54 ° 20,5 ´N	13 ° 48,5 ´E
18	167	5.2.93/01:56 5.2.93/05:45	Sidescan	54 ° 20,5 ´N	13 ° 48,5 ´E	54 ° 30,8 ´N	13 ° 41,4 ´E

Table 3:
POS-199
Geology-Stations

Station	#	Datum/Uhrzeit z	Lat	Lon	Tiefe	GIK-Nummer	Geräte	Eindringung	Ausbeute	Archiv
1	150	3.2.93/09:00	54 ° 21,72 N	13 ° 51,66 E	20,2	18000-1	GKG		Leer	
		3.2.93/09:10	54 ° 21,72 N	13 ° 51,66 E		18000-2	GKG		8 cm	0-8 Kasten
		3.2.93/09:52	54 ° 21,72 N	13 ° 51,66 E		18000-3	GKG		22 cm	0-22 Kasten
2	151	3.2.93/10:32	54 ° 24,64 N	13 ° 45,45 E	22,0	18001-1	GKG	50 cm	50 cm	2x50 cm Rohr
		3.2.93/11:30	54 ° 24,64 N	13 ° 45,45 E	22,0	18001-2	SL 6m		Leer	
		3.2.93/13:02	54 ° 24,64 N	13 ° 45,45 E	22,0	18002-1	SL 3m	>300 cm	298 cm	0-298
	159	4.2.93/10:39	54 ° 24,66 N	13 ° 45,40 E	19,0	18007-1	SL 6m	?	Leer	
3	152	3.2.93/14:39	54 ° 28,70 N	13 ° 43,30 E	23,0	18003-1 (18004 -1)	GKG	>50 cm	50 cm	2-50 Kasten
		3.2.93/14:02	54 ° 28,70 N	13 ° 43,30 E	23,0	18003-2	SL 3m	>300 cm	294 cm	0-294
	161	4.2.93/14:49	54 ° 28,70 N	13 ° 43,40 E	23,0	18008-1	GKG	50 cm	50 cm	0-50 Kasten 2x0-50 Rohre
4	153	3.2.93/15:35	54 ° 33,00 N	13 ° 44,00 E	24,0	18005-1	GKG	50 cm	50 cm	0-38 Kasten
		3.2.93/16:10	54 ° 32,90 N	13 ° 44,00 E	24,0	18005-2	SL 3m	>300 cm	212 cm	0-212
		3.2.93/16:40	54 ° 33,00 N	13 ° 44,00 E	24,0	18005-3	SL 6m	600 cm	292 cm	0-292
	158	4.2.93/09:11	54 ° 32,95 N	13 ° 44,05 E	23,9	18006-1	KL 5,75	200 cm	120 cm	20-120 Kasten
5	162	4.2.93/15:26	54 ° 25,50 N	13 ° 43,80 E	22,0	18009-1	GKG	50 cm	50 cm	0-50 Kasten 2x0-50 Rohre
6	168	5.2.93/08:30	54 ° 30,93 N	13 ° 43,75 E	25,5	18010-1	GKG	50 cm	50 cm	0-50 Kasten 2x0-50 Rohre
8	169	5.2.93/09:50	54 ° 31,81 N	13 ° 44,48 E	24,4	18011-1	GKG	50 cm	50 cm	0-50 Kasten 2x0-50 Rohre
9	170	5.2.93/12:40	54 ° 29,50 N	13 ° 43,46 E	24,0	18012-1	GKG	50 cm	50 cm	0-50 Kasten 2x0-50 Rohre



3	4			ZEICHN.NR.					
C			D						
1	2			MASSTAB:		1:1000			
							GIS		
A			B				BEARB:	11/03/93	
							GEPR:		
				IND	DATUM	NAME		DATUM	NAME

Energiesysteme Nord GmbH
Ingenieurunternehmen für Energie- und Umwelttechnik
Walkerdamm 17 * 2300 Kiel * Tel. 0431:6600-0

ESN

EG-Forschungsprojekt

ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18000-3 GKG 0-22 cm

cm	Graphic Lith.	Section	Age	Structure	Disturb	Sample	Color	Description
5 10 20		1						General Description: 0,0-20 cm: FEINSAND 0,0-0,5 cm: gelblich-braun 0,5-10 cm: dunkelgrau 10-20 cm: hellgrau 2-5 cm: Rippeln Gesamter Kern mit Bioturbationsspuren und Schalenbruchstücken

ODER-Project:
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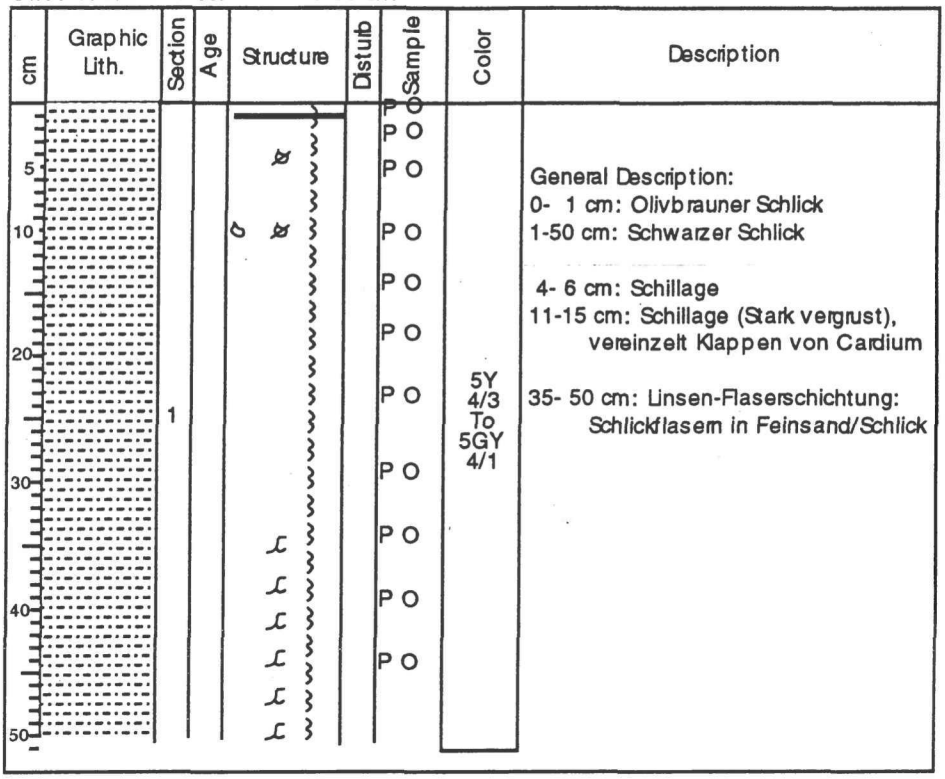
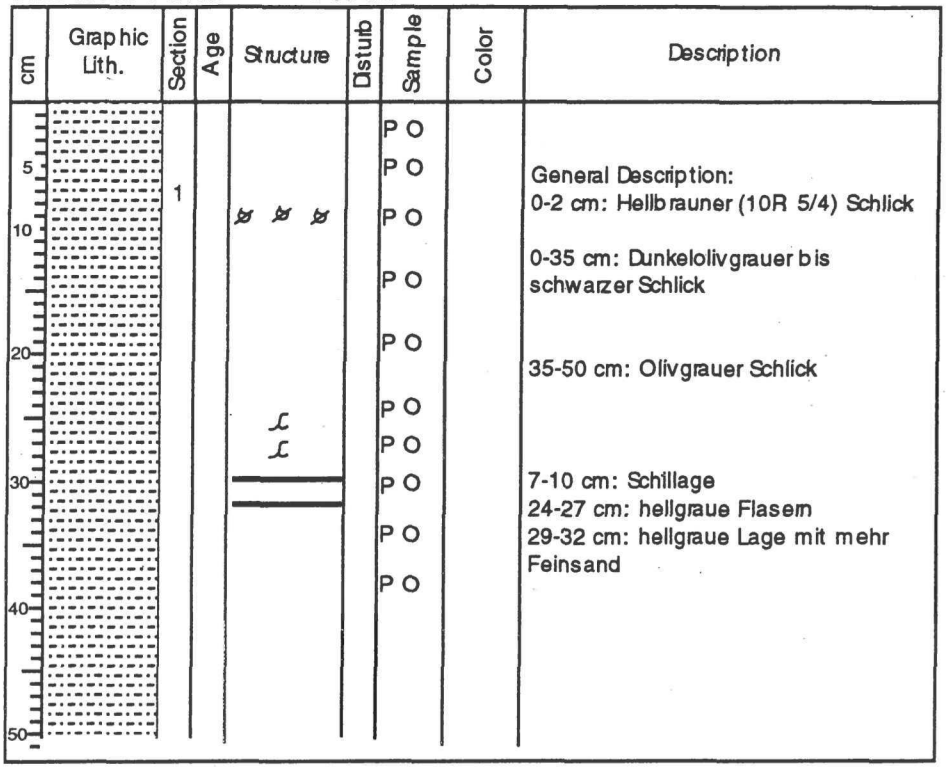
February 1-6, 1993

Site: 18001-1 GKG 0-50 cm



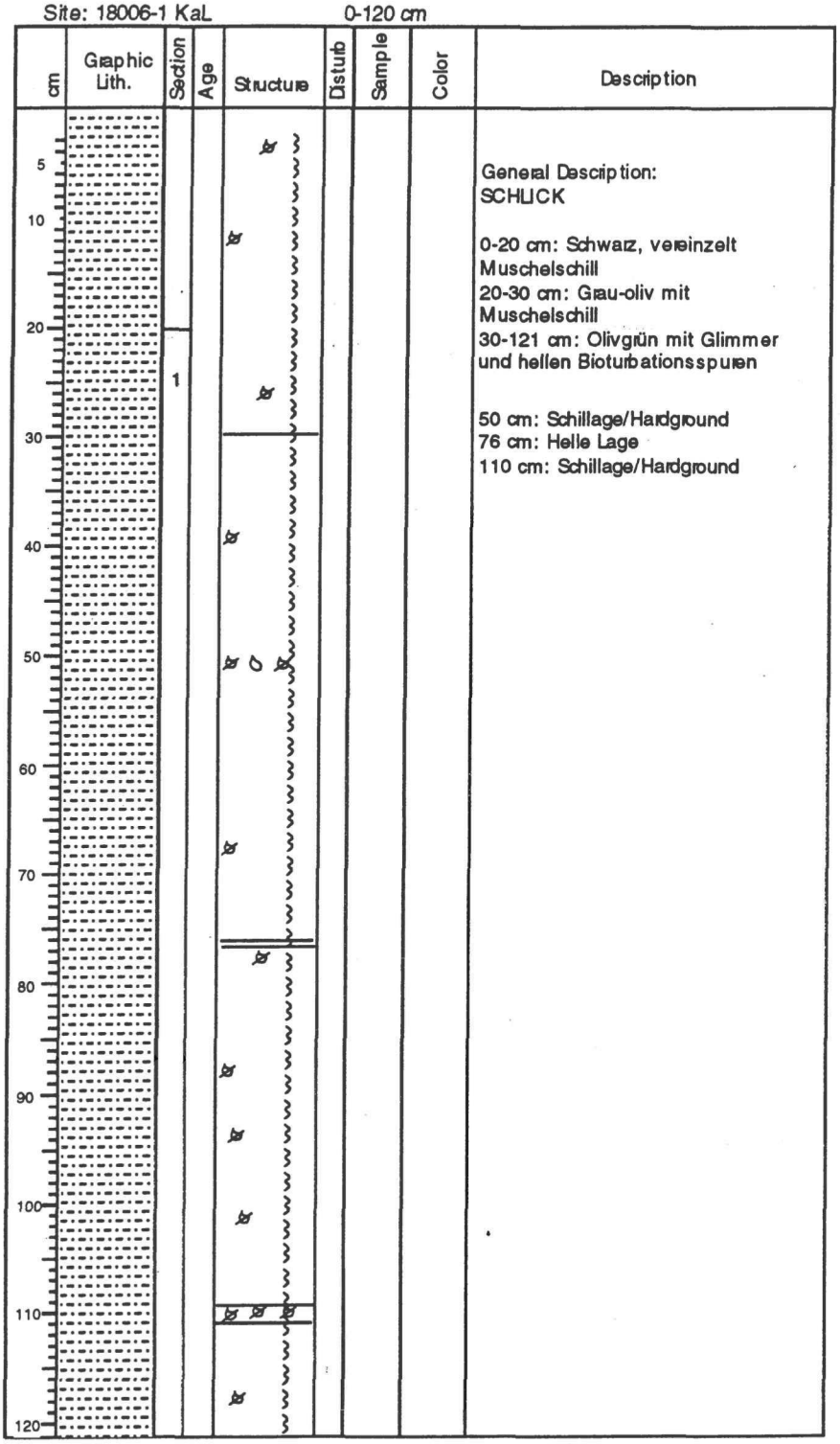
ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18005-1 G KG 0-50 cm



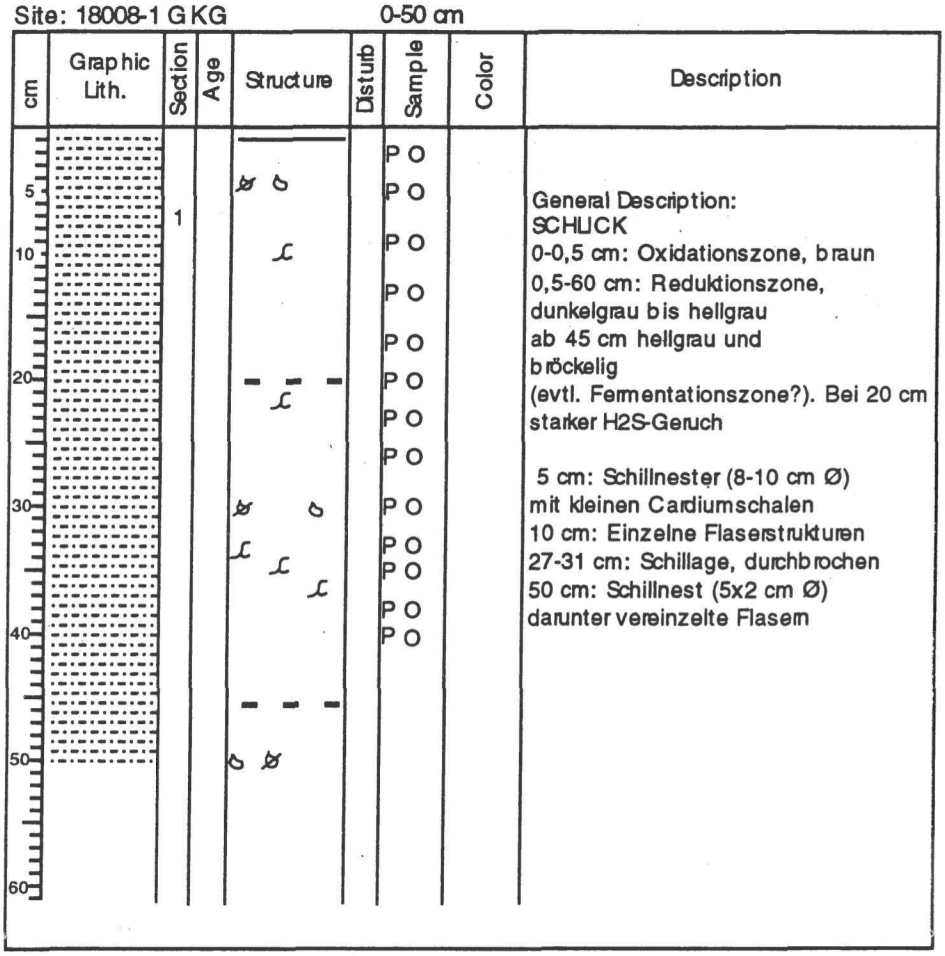
ODER-Project: Cruise POSEIDON-199, February 1-6, 1993

Site: 18006-1 KaL 0-120 cm



ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18008-1 G KG 0-50 cm



ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

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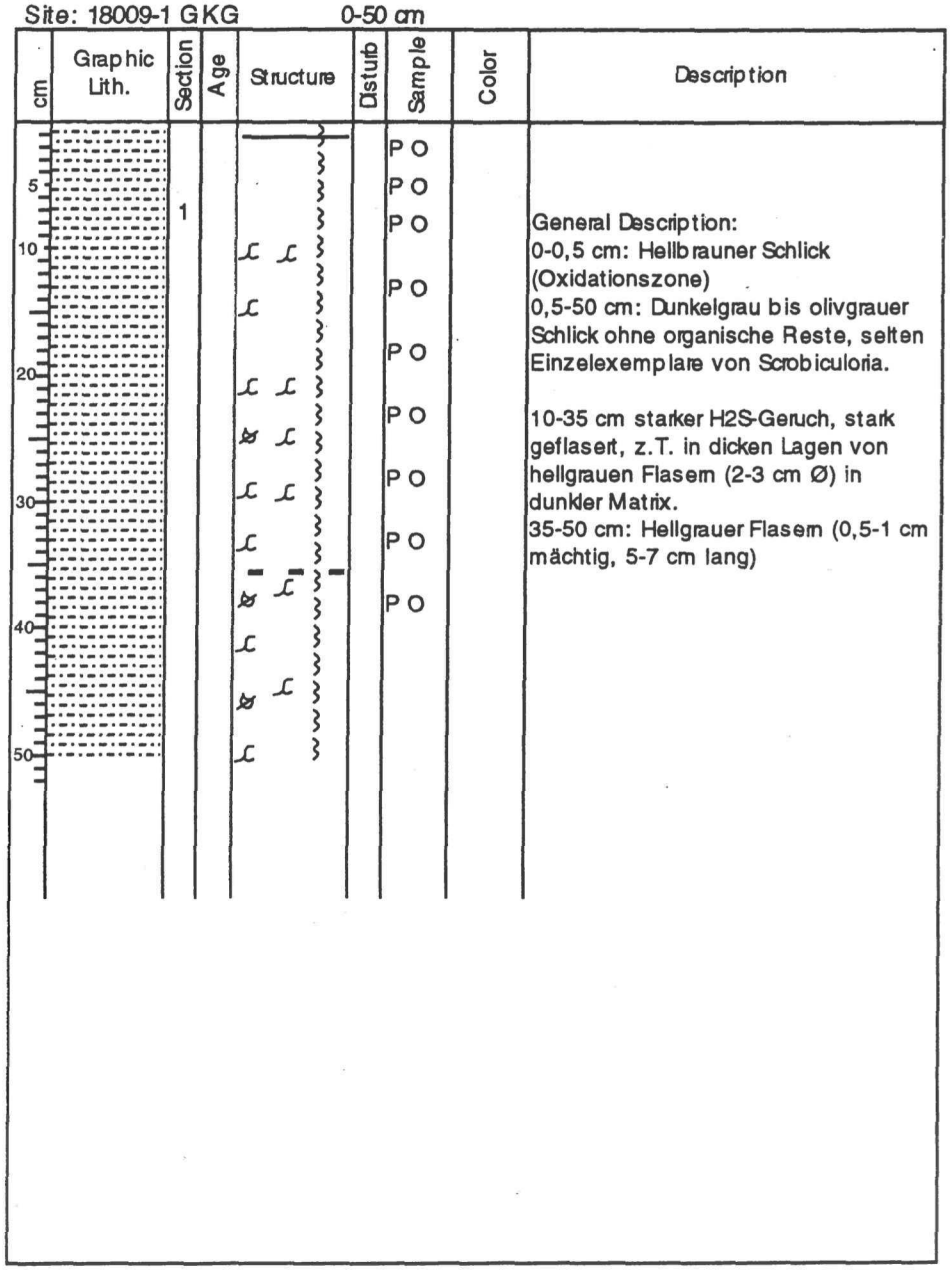
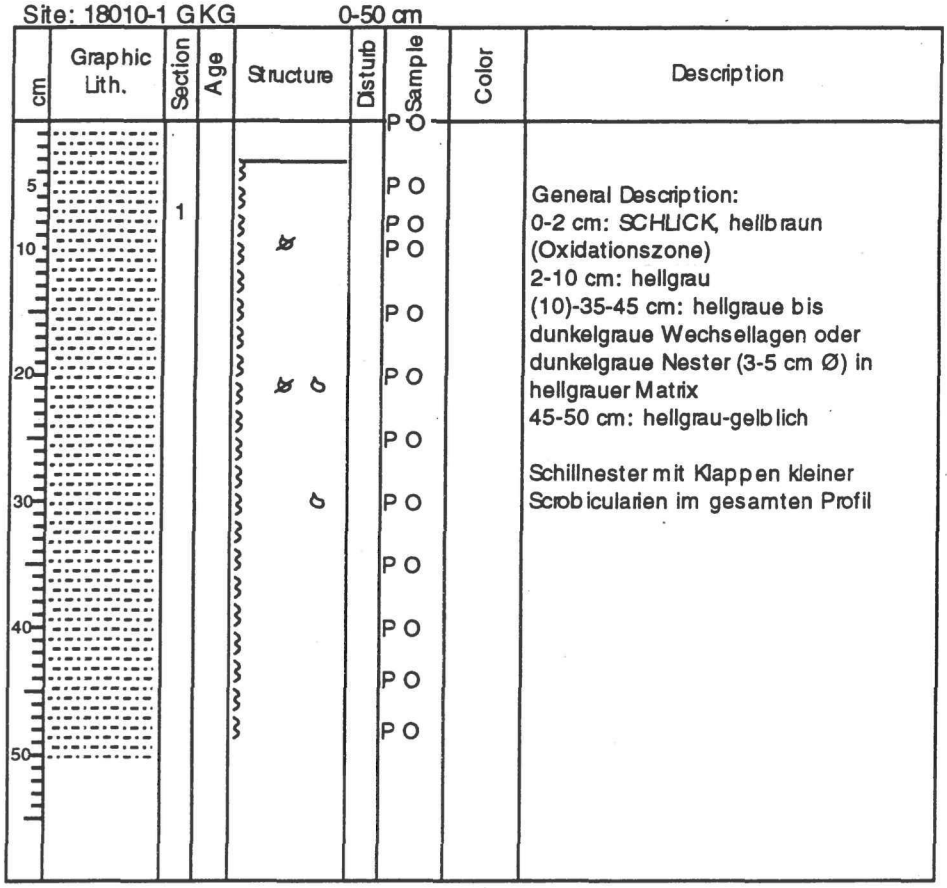


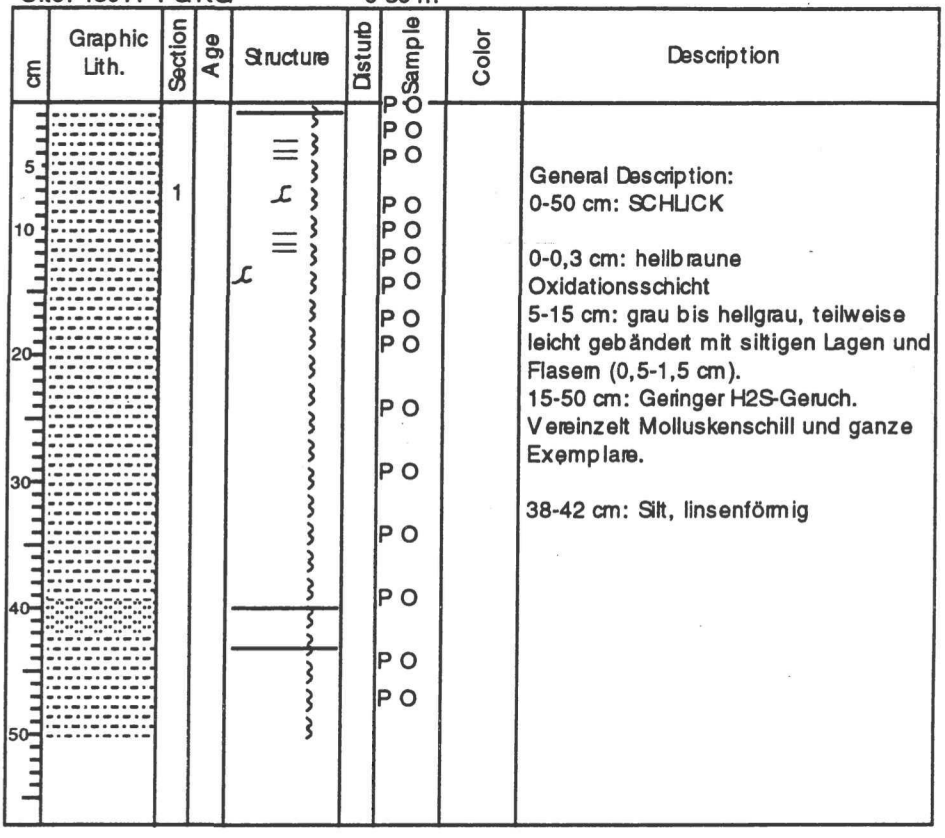
ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18010-1 GKG 0-50 cm



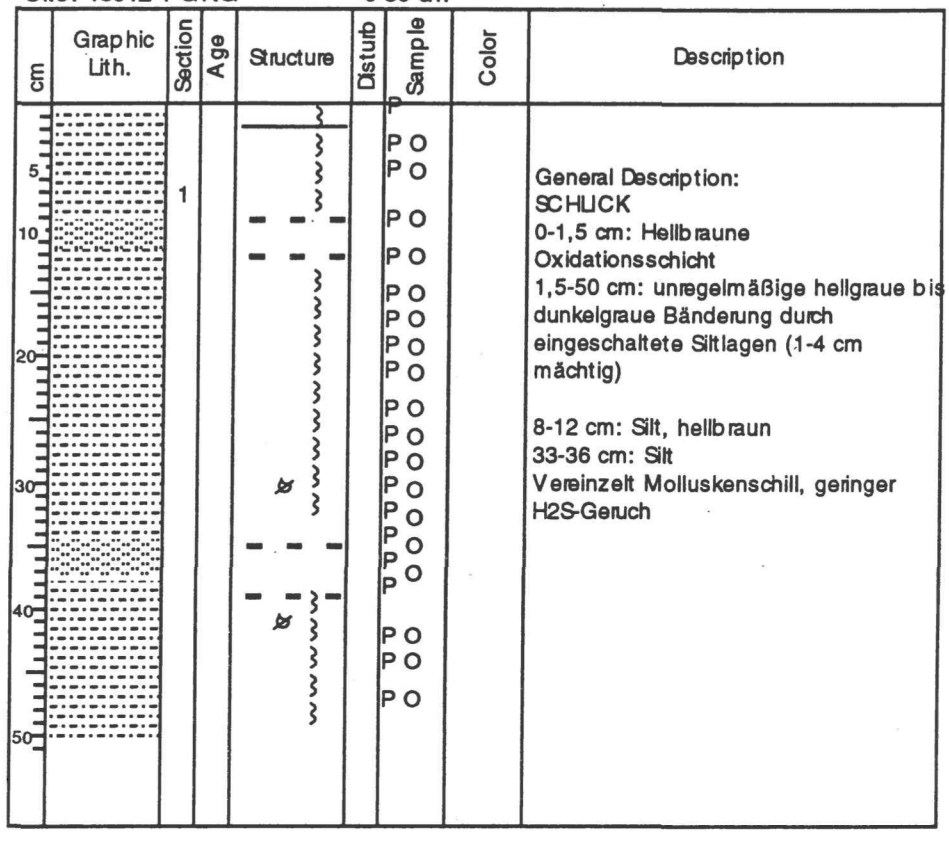
ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18011-1 GKG 0-50 m



ODER-Project:
Cruise POSEIDON-199
February 1-6, 1993

Site: 18012-1 GKG 0-50 cm



Dieter Hauser

Faßberg, 8.2.93

Betrag zum Fahrtleiterbericht POSEIDON CRUISE #199 vom 1.2 bis 6. 2. 93.

1. Teilnehmer N/A

2. Forschungsprogramm sh. Fahrtleiterbericht

hier:
- Aufnahme zunächst der Kleinmorphologie des Meeresbodens in den beprobten Profilstreifen mit Flächenlot (Fächerlotanlage mit Computerunterstützung)
- Darstellung in Form adäquater Isobathen
- als meeresgeographischer Beitrag zur Voruntersuchung der Oderbucht im Rahmen des Gesamtprogramms.

3. Verlauf der Reise

1. 2. Anreise, Einweisung der Fächerlotcrew in die Anlage und praktische Übungen mit dem Fächerlotcomputer (FLC)

1.2. bis 2. 2. Profilfahrten entsprechend Vorgabe durch Fahrtleiter

3. 2 bis 5.2 Arbeiten am Lotcomputer, Datensicherung, Fehlereingrenzung Probeschriebe etc. sowie teilweise Mitarbeit beim Arbeitsprogramm Geologie

5.2 und 6.2 Rückreise

4. Arbeitsprogramm

Seegrundvermessung mit Fächerlot ELAC auf den vorgegebenen Profilstreifen Nummern 1 bis 8 (9 Einzelprofile), technische Daten sh. Fahrtleiterbericht.

Die für 3. 2. bis 5. 2 vorgesehene Verdichtung der Fächerlot - Daten während der weiteren geologischen Erkundung (Profile 9 bis 18) konnte wegen Ausfalls der Lotanlage(n) am 3.2. 93 gegen 14:00a nicht realisiert werden.

dafür:
Versuche zur Instandsetzung der Anlage durch Schiffstechnisches Personal
Mithilfe bei der Fehlersuche
und
Überprüfung der gesicherten Daten,
Probeausdrucke in verschiedenen Formaten

Erste wissenschaftliche Ergebnisse

Liegen noch nicht vor

5. Eingesetzte wissenschaftliche Geräte

Flächenlot der Fa. ELAC, 9 - strahlig (Fächerlot)
Fächerlotcomputer (FLC)

6. Anlagen ....

sh. Fahrtleiterbericht

7. Sonstige Bemerkungen

Da der "für die Wissenschaft vorgesehene" (Zitat) Satelliten - Navigationsempfänger nur eine Standardschnittstelle (RS232) besitzt und diese bereits durch Datenkabel belegt war (Gelogie), sollte das Fächerlot über einen Abgriff von dem für Navigationszwecke vorgesehenen Gerät (an dessen serieller Schnittstelle) mit den zur räumlichen Zuordnung benötigten Daten versorgt werden.

Der erste Offizier lehnte dies - in Anwesenheit des Schiffsführers - ohne Angabe von nachvollziehbaren Gründen ab.

Die Navigationsdaten mußten so in Zeitintervallen vom Empfangsgerät abgelesen und manuell in die Lotdatenausdrucke geschrieben werden.

Damit ist, neben der erhöhten potentiellen Fehlerrate, schon allein aufgrund der Zeitunterschiede (Systemzeit Lot und - Nav. Anlage) die Zuordnung der grundsätzlich möglichen Detailkartierung der Kleinmorphologie zu den rel. Sensordaten der Geologie nicht mehr sicher.
Der für die Auswertung benötigte Zeitaufwand steigt zudem erheblich an.

Nach Ausfall der Lotanlagen haben sich der LI, Herr Oberdalhoff und der Schiffselektriker, Herr Arndt mit großem Engegement und weit über das zu erwartende Maß an Hilfsbereitschaft hinaus bemüht, Abhilfe zu schaffen. Beiden sei hier nochmals herzlicher Dank ausgesprochen.

Für die gute persönliche Betreuung der Eingeschifften durch die Crew der POSEIDON sei hier ebenfalls ein herzlicher Dank ausgesprochen.